ABSTRACT OF THE DISCLOSURE

A system comprises a first processor, a second processor coupled to the first processor, memory coupled to, and shared by, the first and second processors, and a synchronization unit coupled to the first and second processors. The second processor preferably comprises stack storage that resides in the core of the second processor. Further, the second processor executes stack-based instructions while the first processor executes one or more tasks including, for example, managing the memory via an operating system that executes only on the first processor. Associated methods are also disclosed.